

## **RESPONSE TO COMMENTS**

Nevada County Sanitation District No.1  
Cascade Shores Wastewater Treatment Plant  
Nevada County

The Cascade Shores Wastewater Treatment Plant (WWTP) sits at the base of a cliff. On 20 May 2005, a landslide broke the influent pipeline and threatened the remaining treatment system. On 15 September 2005, Nevada County Sanitation District No. 1 (District) informed the Regional Water Board that the response to the landslide and the necessary improvements to eliminate the continuing threat would delay improvements to the system in compliance with Waste Discharge Requirements (WDRs) Order No. 5-01-177. In order to eliminate the ongoing threat from additional landslides, the Discharger decided to relocate the WWTP away from the hillside. The District requested additional time to complete the improvements and to relocate the WWTP. The relocation of the WWTP is complementary to the necessary compliance improvements to the WWTP. A tentative Cease and Desist Order (CDO) was issued for public comment on 9 January 2006 for the Cascade Shores Wastewater Treatment Plant to accommodate the Discharger's schedule. The Discharger submitted comments on 13 February 2006. The following are the District's comments followed by the Regional Water Board's response:

### **CDO Comment 1:**

Historical flow data indicates that if the filters could filter all the flow, then the WWTP could comply with the WDR effluent limitations No. B.1. Problems occurred when during high flow periods and not all the wastewater was filtered resulting in effluent violations for BOD, total suspended solids and total coliform organisms.

The District has completed repairs to the collection system in order to reduce the amount of flow contributed from inflow and infiltration (I&I). The Discharger believes that the sewer repairs will reduce the volume of I&I flow by approximately 15,000 to 17,000 gpd. The District has replaced the filter media, cleaned the filter's under drain and backwash system, rebuilt one backwash pump and serviced the other pump, and installed air relief valves on the filter system. After the maintenance repairs to the filters were completed, the District found that the filters were capable of producing an effluent with turbidity of 2 NTU or less for flow rates up to 28,000 gpd. The District also simulated a test flow of 55,000 gpd for 15 minutes and the filters successfully passed the test.

The District has installed a 400-gallon soda ash tank to allow for compliance with WDR Order 5-01-177 Effluent Limitation No. B.4 and has previously modified the reaeration method for the outfall to comply with the effluent limitation for dissolved oxygen.

The District believes that these improvements to the WWTP will be sufficient to ensure compliance with WDR Order No.5-01-177 Effluent Limitations B.1.A, B.4 and B.5.

### **Response 1:**

Comment noted.

### **CDO Comment 2:**

The District has completed a Contingency Backup Plan and submitted a copy of it to the Regional Water Board.

**Response 2:**

The Contingency Backup Plan is to be implemented in case of another landslide causing harm to the wastewater collection or treatment systems before the final project is complete.

**Comment 3:**

The existing treatment facility was designed for filtering 26,000 gpd. The filters were not designed for peak winter flows. Testing after the media replacement this summer indicated that the filters could only handle about 15,000 gpd if the clarifier effluent turbidity was below 4 NTU. During winter, because the turbidity was usually higher than 4 NTU, the filters could only handle about 10,000 gpd when the total flow was 30,000 gpd. Previously, as much flow as possible was put into the filters with the rest bypassed around the filters. When the filters were on-line during the wet weather flows, the plant could go into continuous backwash and flood out sections of the plant, thereby causing excessive solids to be discharged into the effluent.

As previously detailed under the District's comments on CDO No. 1, maintenance and improvements to the WWTP filters and sewer system has been completed. These improvements should eliminate bypass of the filters during higher flows and compliance with WDR Order No. 05-01-177 Provision E.4 and Effluent Limitations No. B.2.

**Response 3:**

The intentional filter bypass has been the source of a significant number of past effluent limitation violations. The maintenance and improvements to the filtration system should help achieve compliance with discharge limitations.

**Comment 4:**

The District believes that it is premature at this time to conduct a toxicity identification evaluation based on the December 2004 test result. The District requests that the toxic identification evaluation be deferred until after the new treatment facility upgrade is completed and only if future toxicity test results then indicate that a toxicity identification evaluation is warranted.

**Response 4:**

WDRs Order No. 5-01-177 Provision No. E.6 requires that "*The Discharger conduct chronic toxicity testing specified in the Monitoring and Reporting Program*"... The Discharger is not required to conduct a TIE at this time, rather the CDO requires the Discharger to comply with Monitoring and Reporting Program No. 5-01-177 and WDRs Order No. 5-01-177 Provision No. E.6. In order to provide clarification regarding requirement to conduct the chronic toxic monitoring, the CDO was modified.

**Comment 5:**

The Tentative CDO incorrectly identifies that there is overflow from the waste storage tank to the aeration tank. This does not occur. The equalization tank overflow to the aeration tank should not be considered a problem. It is not a violation of the discharge requirements and it is designed to operate that way. The plant is run in overflow mode during winter flows, because the equalization tank capacity is 18,000 gallons and the flows could reach 50,000 gpd. Also, the related high water alarm does not mean that there is a problem with effluent quality. The equalization tank previously had overflow going

to the aeration tank almost every time there was rain. The short history since the collection system repairs to reduce I&I indicate that this does not occur as frequently.

The amount of flow that is pumped into the aeration tank from the equalization tank as opposed to the excess amount that is returned back to the equalization tank is adjusted by a weir device that is manually adjusted. The flow rate to the aeration tank is set by the plant operator to dampen the effects of influent flow increasing or decreasing to the equalization tank. When the operator sets the flow to the aeration tank, a subsequent rain event can force the flow to increase to a point that there is overflow to the aeration tank. If the flow is set too high to the aeration tank, the equalization tank will be pumped down at low flow time and cause reduction of flow that results in hydraulically under-loading the treatment process. It also causes control problems with the pH and disinfection systems.

The equalization tank overflow to the aeration tank should not have a significant impact on effluent water quality in the plant. Just because there is overflow does not necessarily mean there is excessive nitrates, ammonia, pH, or toxicity. The primary reason for the equalization tank at this site is to maintain flow during low flow times (usually late night to early morning), not to limit flows during higher flow times. Since overflow from the equalization tank to the aeration tank should not happen as frequently due to the reduced I&I previously describe under CDO No. 1, additional sampling for all of the listed constituents should not be needed.

Also, as previously identified under District CDO No. 3 comments, bypass of the filters should no longer occur due to higher flows.

The District is requesting that the requirement for the extra effluent sampling and testing during a high water alarm for the equalization tank or overflow from the equalization tank to the aeration tank be removed. The District will collect a grab sample of the effluent for the testing as shown, if and when, a bypass of the filters occurs. If the bypass occurs when regular scheduled monitoring of any the constituents identified under this Tentative CDO No. 5, we would not do a second sample and test for the same constituent.

**Response 5:**

The tentative CDO has been revised to remove effluent monitoring in the event of a high water alarm or overflow of the equalization tank.

The CDO requires the Discharger to conduct effluent monitoring if the WWTP's filters are bypassed. As the Discharger states in Comment No. 3 above, filter bypasses should be eliminated by the corrective actions already undertaken and this requirement should not therefore have any impact. The impact of past filter bypasses were not assessed and the corresponding water quality impacts could not be completely determined.

**Comment 6:**

The District is requesting to continue current grab samples for chlorine. The new treatment facility will utilize ultra violet disinfection (UV) and will not be able to use the equipment. The grab samples would be instead of installing a continuous chlorine analyzer. Also, continuous chlorine analyzer may not work during low flows. The continuous monitoring is especially difficult to accomplish, because, at times, the effluent flow is equivalent to a kitchen faucet opened to a dribble. So, the amount of sample that is needed for mixing with the chlorine analyzer's reagent is at times more than the plant's effluent flow.

The District will install a continuous pH monitoring and alarm system within three months after adoption of the CDO. This equipment will be able to be used at the new WWTP.

**Response 6:**

The Discharger was required by WDRs to install a continuous chlorine residual monitoring device within two years of the permit adoption, i.e. 14 June 2003. According to the Discharger's updated Work Plan, dated 29 October 2002, the chlorine-monitoring device was to be installed by 31 October 2003. To date, the Discharger has not installed the continuous chlorine residual monitoring device. Failure to address the chlorine monitoring requirement in the Cease and Desist Order would leave the WDR noncompliance unaddressed and the Discharger in ongoing violation.

The WWTP is staffed for approximately twelve to nineteen hours per week and is left unmanned for the remaining period of time (149 hours). A significant number of the effluent violations have occurred when the WWTP was left unmanned. The WWTP currently uses chlorination for disinfection. Chlorine excursions have occurred for extended time periods (over several days) without detection when the WWTP was unmanned. In addition to the chlorine violations, failure of the disinfection system has also resulted in violation of effluent limitations for total coliform organisms. The Discharger has committed approximately 34 violations of the daily maximum total coliform organism limitation during the last five years.

The cost to purchase the chlorine monitoring equipment is estimated to be approximately \$4,500 to \$6,000. Violations of the effluent limitation for chlorine residual are subject to mandatory minimum penalties. The continuous monitoring equipment will be connected to an automated alarm system that will prompt an early operator response, which is not possible with manual grab samples. The monitoring equipment would pay for itself, if the Discharger, prevents through early detection, a single weekend of chlorine residual or total coliform organism violations. The past presence of this equipment would have eliminated many of the mandatory penalties for which the Discharger is currently liable.

The State Water Board's proposed chlorine monitoring policy requires continuous monitoring with very limited exceptions which would not apply to the Cascade Shores WWTP discharge. While this policy is not yet applicable, it does speak to a statewide consistency of requiring continuous chlorine monitoring. The requirements for continuous chlorine monitoring are also consistent with the Regional Water Board's regulation of other domestic wastewater dischargers.

The Discharger contends that after the new facility is constructed and if ultra violet (UV) equipment were installed, then the Discharger would not be able to use the chlorine equipment. It is common practice to use chlorine at WWTPs for purposes other than effluent disinfection. For example, chlorine may be used to clean filters during backwash operations, odor control, cleaning of clarifier weirs and in reclamation systems. Regional Water Board staff has found chlorine residual present in the effluent of WWTP that employed UV systems for disinfection. It is the experience of Regional Water Board staff that continuous chlorine monitoring equipment is necessary for wastewater system using other means of disinfection.

The Discharger contends that during low flow periods, the flow rate may be too low for chlorine monitoring equipment to work properly. However, chlorine monitoring equipment may be situated in the effluent sump or employ other piping modifications to monitor low flow conditions.

**Comment 7:**

Effluent Limitations B.1.B cannot be met until September 2007 after construction of the new WWTP. The existing WWTP was not designed to remove nitrogen or ammonia. It also cannot meet the new 7-Day Median Total Coliform requirement. An anoxic zone is planned in the new treatment facility, but it is not practical to install one at the existing facility for the short-term deadline.

The District requests that the compliance deadline for Effluent Limitations B.1.B be revised to reflect the schedule that is shown under Tentative CDO No. 9.

**Response 7:**

The Discharger requests that the compliance deadline for Effluent Limitations B.1.B be deferred until after the WWTP improvements have been completed.

California Water Code (CWC) section 13385(h) and (i) require the Regional Water Board to impose mandatory minimum penalties upon dischargers that violate certain effluent limitations. CWC section 13385(j) exempts certain violations from the mandatory minimum penalties. CWC section 13385(j)(3) exempts the discharge from mandatory minimum penalties “*where the waste discharge is in compliance with either a cease and desist order issued pursuant to Section 13301 or a time schedule order issued pursuant to Section 13300, if all the [specified] requirements are met. ... For the purposes of this subdivision, the time schedule may not exceed five years in length...*” The time schedule for ammonia, nitrate, turbidity and 7-day median total coliform organisms effluent limitations subject to this CDO were adopted on 14 June 2001 in WDRs Order No. 5-01-177 with an effective date of 14 June 2006. The Discharger requested flexibility in the permit time schedule to complete the WWTP improvements. The CDO requires the Discharger to complete the construction of the necessary improvements by 30 September 2007, which is beyond the five-year period allowed for the exemption of mandatory penalties. The proposed CDO contains the time schedule requested by the Discharger. However, since the Discharger has exhausted a 5-year compliance period allowed under the law, the Discharger may be subject to mandatory minimum penalties set forth in section 13385(i) of the CWC. Therefore, the CDO does not exempt the Discharger from mandatory minimum penalties for effluent violations occurring at the WWTP.

**Comment 8:**

The existing facility cannot consistently meet the new turbidity requirements shown under Effluent Limitations B.1.B. The existing facility was not designed to maintain such a low turbidity. The District requests that the compliance for installation of the continuous monitoring and recording device to monitor turbidity be revised to reflect the schedule shown under Tentative CDO No. 9 for the new WWTP, i.e. 30 September 2007.

**Response 8:**

WDRs Order No. 5-01-177 contained a 5-year time schedule for the Discharger to upgrade the WWTP and to install turbidity monitoring equipment. As discussed above, the Discharger has exhausted a 5-year compliance period allowed under the law and may be subject to mandatory minimum penalties for violations of effluent limitations for turbidity.

Failure of the filtration system normally results in an increase in the number of waste particles in the effluent and a higher effluent turbidity. Turbidity monitoring may be used as an indicator of effective treatment, particularly, filter performance and is necessary to monitor compliance with effluent

limitation for turbidity. The continuous monitoring equipment will be connected to an automated alarm system that will prompt an early operator response thus eliminating or reducing the number of violations. As was the case with chlorine monitoring, discussed above, the continuous monitoring, will allow the Discharger to detect wastewater treatment system problems earlier, reducing the number and duration of violations and the corresponding mandatory penalties.

**Comment 9:**

Preparation of the design plans and specifications for the new WWTP is in progress.

Schedule shown in CDO can be met if all planned financing including State Revolving Fund loan comes together. The District may need to request additional time after the insurance carrier has made a final determination regarding settlement.

**Response 9:**

The Discharger proposed time schedule was utilized in developing the CDO.

**Comment 10:**

The District will provide a quarterly compliance report. Can RWQCB clarify that this quarterly compliance reporting would replace what was previously specified in Cleanup and Abatement Order No. R5-2005-0714?

**Response 10:**

Cleanup and Abatement Order (CAO) No. R5-2005-0714 was issued by the Executive Officer in August 2005 to address threaten violations at the WWTP due to the instability of the hillside. Upon adoption of the CDO the Executive Officer will rescind Cleanup and Abatement Order No. R5-2005-0714.